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PCT/NZ2004/000316

CERTIFICATE

This certificate is issued in support of an application for Patent registration in a country outside New Zealand pursuant to the Patents Act 1953 and the Regulations thereunder.

I hereby certify that annexed is a true copy of the Provisional Specification as filed on 4 December 2003 with an application for Letters Patent number 529970 made by JOHN RUSSEL NEUSTROSKI; DAVID JAMES CALDER MCCORMICK; GRAEME WILLIAM STURGEON.

Dated 11 January 2005.



Neville Harris
Commissioner of Patents, Trade Marks and Designs



Patents Form No. 4

Our Ref: JT220943

Patents Act 1953
PROVISIONAL SPECIFICATION

METHOD AND APPARATUS FOR EXTERMINATION OF PESTS

We, JOHN RUSSEL NEUSTROSKI, DAVID JAMES CALDER MCCORMICK
AND GRAEME WILLIAM STURGEON, all citizens of New Zealand, of c/- A D
McCormick, Main Road Matatoki RD 1, Thames New Zealand do hereby
declare this invention to be described in the following statement:

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FIELD OF THE INVENTION

The invention relates to a method and apparatus for the extermination of pests, in particular rats, stoats and other vermin.

5

BACKGROUND OF THE INVENTION

In a number of countries such as New Zealand, introduced species of animal have had a detrimental effect on the indigenous or native plant, bird, insect and other life.

10

In an attempt to control and exterminate pests, whether introduced species or not, a large number of different traps and similar mechanisms have been designed to capture and/or kill pests. A difficulty with many such traps is that the trapped pest does not die humanely and this can be a particular concern. A typical trap which is inhumane is the type of trap generally known as a gin trap which has a set of jaws to clamp a part of the pest. Normally in gin traps a pest is held until it either dies naturally or alternatively is killed by a person attending the trap.

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An object of the present invention is to provide a lightweight versatile user friendly relatively inexpensive means for exterminating pests which at least offers a useful alternative choice.

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A further object of the invention is to provide a means for exterminating a pest which substantially eliminates the risk of killing wildlife which is intended to be saved or preserved by use of the means for extermination, or to at least provide the public with a useful choice.

25

SUMMARY OF THE INVENTION

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In a first aspect, the invention provides an extermination device, comprising a holder and a trigger mechanism, the holder being configured to hold an expanded resilient ring and the extermination device being configured to release the resilient ring, such that it contracts around a pest, when the trigger mechanism is actuated by the pest.

In a second aspect, the invention provides a method of exterminating a pest, comprising the steps of: expanding a resilient ring; and releasing the resilient ring onto a pest when the resilient ring is located around the pest.

5 BRIEF DESCRIPTION OF THE DRAWINGS

Examples of the invention will now be described with reference to the accompanying drawings in which:

10 **Figure 1** is a perspective view from the side of an extermination device according to the invention;

15 **Figure 2** is a side view of the extermination device shown in Figure 1;

Figure 3 is an end view of the extermination device;

20 **Figure 4** is a perspective view from the side of the extermination device;

Figure 5 is a plan view of the exterminator device;

25 **Figure 6** is a vertical section through an example of an extermination device incorporating a reloading and/or resetting mechanism with a plurality of resilient rings;

Figure 7 is a perspective view of an example of an extermination device having an internal trigger mechanism; and

30 **Figure 8** is a plan view of the device of Figure 7.

DESCRIPTION OF THE INVENTION

Examples of the invention will now be described with reference to the accompanying drawings. The first example in Figures 1 to 5 of the drawings show the actual size of an extermination device designed for rats or stoats. It is to be appreciated that for other animals the overall size and dimensions of the extermination device may be

larger or smaller as needed to suit the size of the target pests.

In Figure 1 is shown an extermination device including a holder 100 and a front cover 3.

5

The holder 100 is shown in more detail in Figures 2 to 4. The holder 100 comprises a central section 1 and a cover 2, and is tubular, with an internal bore 4. The holder may be circular in cross-section as shown in the drawings, or may have another suitable cross-section. The diameter of the bore 4 is chosen to suit the target pest and the tube 10 has an entrance or open mouth 5 at a first end where the pest enters. For small pests such as mice, rats and stoats the diameter is preferably in the range 25 to 40 mm. For larger pests such as polecats, possums and cats, the diameter is preferably in the range 60 to 100 mm.

10

15 The second end of the holder 100 is formed by the cover 2, creating a closed region in which food or an attractant is placed.

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The extermination device has a trigger operated by a trigger mechanism 6 shown in Figure 3. To set the trigger mechanism, it is pushed backwards in a slot 25 and to the 20 right (as shown in Figure 4), such that it sits in a notch 24 in the holder. When a pest enters the trap, the trigger mechanism 6 moves arcuately (as shown by arrow 7 in Figure 3), so that it is released from the notch and is forced forwards by a spring 20 to 25 release the resilient ring 8. The resilient ring 8 is mounted relative to the mouth 5 of the extermination device in a release position, adjacent to the open mouth 5, such that after it slides off the open mouth 5 it contracts around whatever is within the open mouth 5 of the holder 100. Other trigger mechanisms may also be suitable.

25

30 The resilient ring 8 may be formed of natural or synthetic rubber or a composite material. It could also be formed from metal in the form of a spring, or at least partly of rigid material with a biasing means tending to force sides of the ring together. While the resilient ring is preferably circular in shape, it could, for example, be formed from a rectangle of resilient material with a hole cut through it. Other configurations may also be suitable.

30

35 The resilient ring 8 has a normal diameter that is significantly less than the diameter of

the holder at the release position so that on release from the open mouth 5 it contracts to its normal size which is less than the size of the neck of the target pest.

On activation of the trigger mechanism 6 by a pest whose head is within the mouth 5 the rubber or composite ring 8 traps whatever is in the mouth of the exterminator means. Any animal or pest that activates the trip arm 6 therefore has immediately placed around its neck a resilient ring which will cut off the blood and air supply to the animal thereby killing it humanely.

Since the ring 8 is not retained by the extermination means, the animal may still move away from the site of the extermination means, so that other pests will be able to actuate the trigger mechanism.

As shown in Figure 1, a front cover 3 can be provided and is designed to protect against accidental tripping of the trip arm. The front cover 3 has an opening 9 to allow a pest to access the opening 5.

The front cover 3 connects with the holder at surface 10 and is positioned so that the target animal can still reach and actuate the trigger mechanism.

In the second example shown in Figure 6 the extermination device has similar parts to those incorporated in the first example referenced by the same numerals. In this case the exterminator device has an automatic loading mechanism. The loading mechanism includes a moveable shaft 11 with a ratchet mechanism 12 operated by the trigger mechanism 6. Movement of the shaft 11 is under the bias of a spring 13. The shaft 11 includes stops 14. A hinged cover 15 is provided to enable access to the mechanism when it is being reloaded with more or additional rings 8.

In use when an animal pest tries to eat bait or attractant 16 it knocks the trigger mechanism 6. A first ring is released from the release position, contracting around the pest's neck. The spring 13 will then push forward and the trigger mechanism will be reset on its next notch ready to be tripped again. The forward movement of the shaft 11 presents the next in the succession of rings 8 to the release position adjacent to the mouth 5 of the holder 100.

Figures 7 and 8 show a third example of an extermination device according to the invention. This example differs from the device described above in that the trigger mechanism is located within the holder. This protects the trigger mechanism from dirt, twigs and the like, which may prevent it from functioning correctly. The trigger functions in a manner similar to that described above.

These figures also show the device with a base plate 21 for mounting the extermination device in a suitable position. The base plate 21 preferably includes holes 22, 23 to facilitate such mounting.

The device may be placed in any position that a targeted pest can access. The device may be placed on the ground, in a tree or attached to a board or post, for example.

While the present invention has been illustrated by the description of the embodiments thereof, and while the embodiments have been described in detail, it is not the intention of the Applicant to restrict or in any way limit the scope of the appended claims to such detail. Additional advantages and modifications will readily appear to those skilled in the art. Therefore, the invention in its broader aspects is not limited to the specific details, representative apparatus and method, and illustrative examples shown and described. Accordingly, departures may be made from such details without departure from the spirit or scope of the Applicant's general inventive concept.

CLAIMS

1. An extermination device, comprising a holder and a trigger mechanism, the holder being configured to hold an expanded resilient ring and the extermination device being configured to release the resilient ring, such that it contracts around a pest, when the trigger mechanism is actuated by the pest.

2. An extermination device as claimed in claim 1, wherein the holder is tubular and is open at a first end and closed at a second end.

3. An extermination device as claimed in claim 2, wherein at least part of the trigger mechanism is located within the holder.

4. An extermination device as claimed in claim 3, wherein the trigger mechanism is located entirely within the holder.

5. An extermination device as claimed in claim 3 or 4, wherein a bait or attractant is placed such that the trigger mechanism is between the first end and the bait or attractant.

6. An extermination device as claimed in any one of claims 2 to 5, wherein the trigger mechanism includes a lever.

7. An extermination device as claimed in claim 6, wherein the trigger mechanism is biased towards the first end.

8. An extermination device as claimed in any preceding claim, wherein the resilient ring is made from natural or synthetic rubber.

9. An extermination device as claimed in any one of claims 1 to 7, wherein the resilient ring is made from a composite material.

10. An extermination device as claimed in any one of claims 1 to 7, wherein the resilient ring is made from a spring.

11. An extermination device as claimed in any preceding claim, wherein a dimension of an opening of the holder is in the range 25 to 40 mm.

5 12. An extermination device as claimed in any one of claims 1 to 9, wherein a dimension of an opening of the holder is in the range 60 to 100 mm.

10 13. An extermination device as claimed in any preceding claim, wherein the holder is configured to hold a plurality of expanded resilient rings, and the extermination device is configured to release one of the plurality of expanded resilient rings when the trigger mechanism is actuated.

15 14. An extermination device as claimed in claim 13, wherein the holder is configured to hold a first one of the expanded resilient rings at a release position, and the extermination device is configured to move a second one of the expanded resilient rings to the release position when the first one of the expanded resilient rings is released.

20 15. An extermination device as claimed in claim 14, further comprising a biasing means configured to apply a force to the second one of the resilient rings, towards the release position.

25 16. An extermination device as claimed in claim 15, wherein the biasing means is coupled to the trigger mechanism.

17. An extermination device as claimed in any preceding claim, configured to release the resilient ring, such that it contracts around the neck of the pest.

30 18. A method of exterminating a pest, comprising the steps of:
expanding a resilient ring; and
releasing the resilient ring onto a pest when the resilient ring is located around the pest.

19. A method as claimed in claim 18, further comprising the step of holding the expanded resilient ring on a holder before releasing the resilient ring and wherein the

step of releasing the resilient ring is performed when the pest actuates a trigger mechanism.

20. A method as claimed in claim 19, wherein the holder is tubular and is open at a
5 first end and closed at a second end.

21. An extermination device as claimed in claim 20, wherein at least part of the
trigger mechanism is located within the holder.

10 22. A method as claimed in claim 21, further comprising the step of placing a bait or
attractant in the holder such that the trigger mechanism is between the first end and the
bait or attractant.

15 23. A method as claimed in any one of claims 19 to 22, comprising the step of
loading the expanded resilient ring onto the holder, prior to holding the resilient ring on
the holder.

20 24. A method as claimed in any one of claims 19 to 23, wherein the step of holding
the expanded resilient ring comprises holding a plurality of expanded resilient rings,
and the step of releasing the resilient ring comprises releasing one of the plurality of
expanded resilient rings.

25 25. A method as claimed in claim 24, wherein the step of holding the expanded
resilient ring comprises holding a first one of the plurality of the expanded resilient rings
at a release position, the method further comprising the step of moving a second one of
the expanded resilient rings to the release position when the first one of the expanded
resilient rings is released.

30 26. A method as claimed in any one of claims 18 to 25, using the extermination
device of any one of claims 1 to 17.

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35 By their Attorneys
BALDWIN SHELSTON WATERS

PSPEC30099

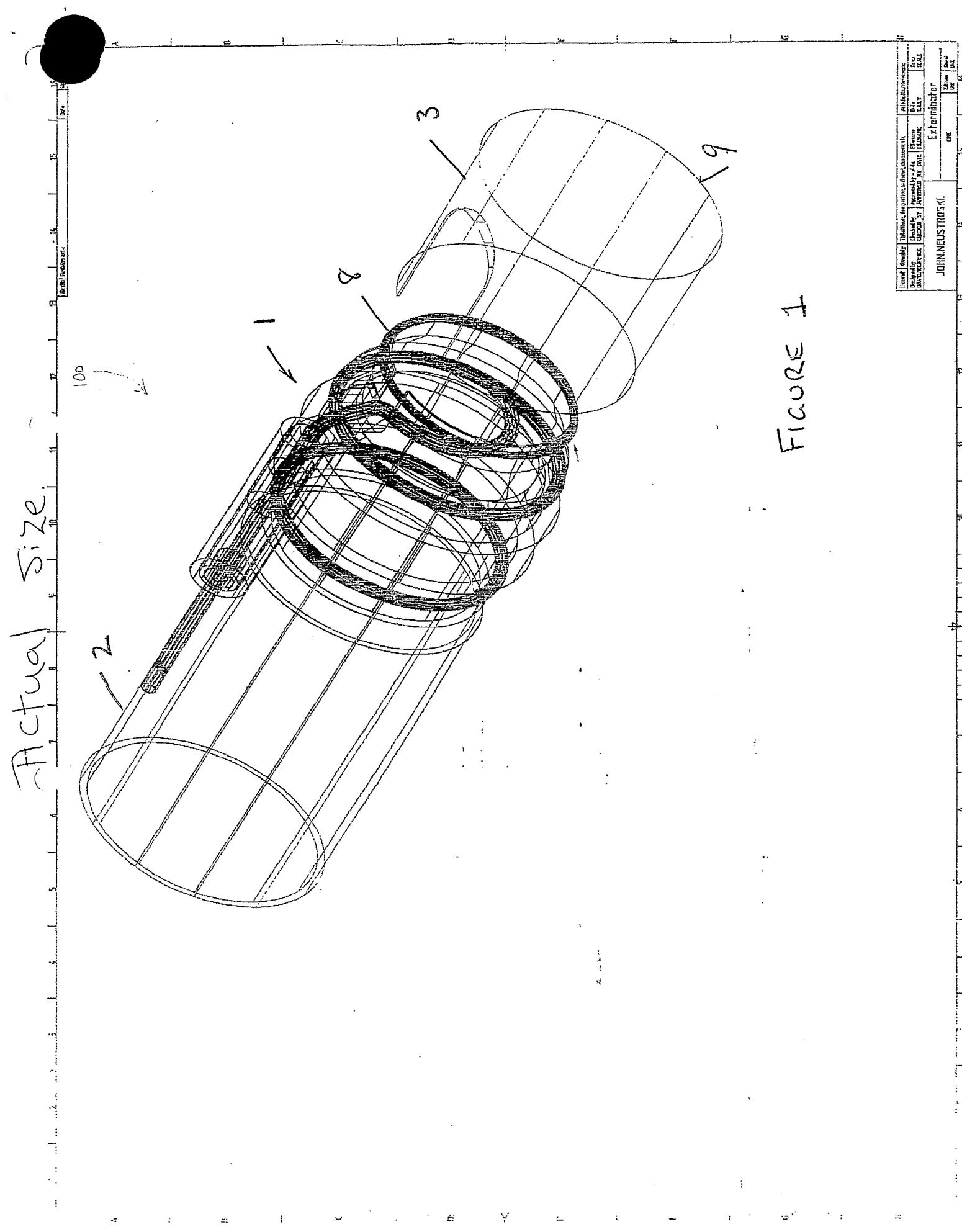


FIGURE 1

Actual Size

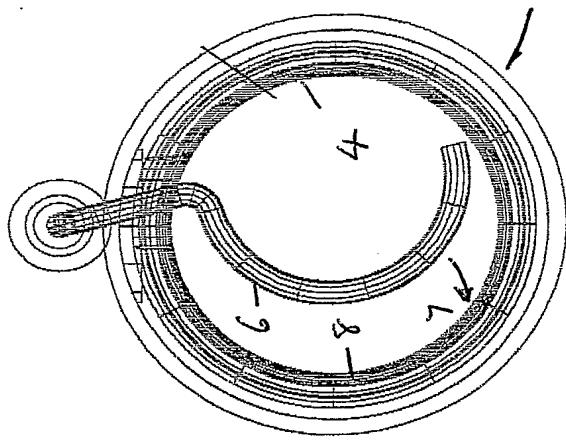
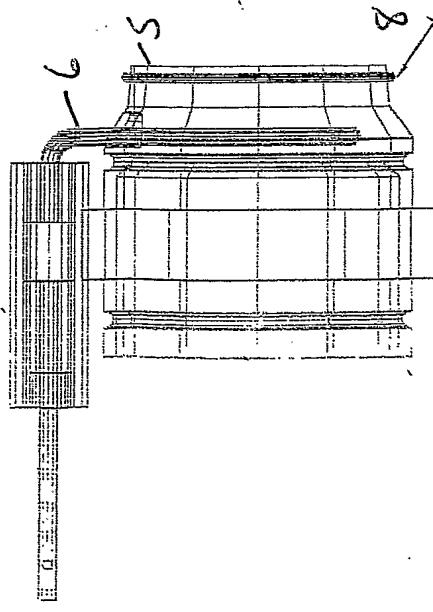


Figure 2 shows a spherical structure, possibly a ball or a container, with several labeled parts:

- 1: A small circular component attached to the left side of the sphere.
- 20: A curved line or band near the bottom left of the sphere.
- 24: A curved line or band near the top left of the sphere.
- 25: A curved line or band near the top right of the sphere.
- 6: A curved line or band near the bottom right of the sphere.
- 8: A curved line or band near the middle right of the sphere.
- 4: A curved line or band near the top right of the sphere.



1 / FIGURE 2

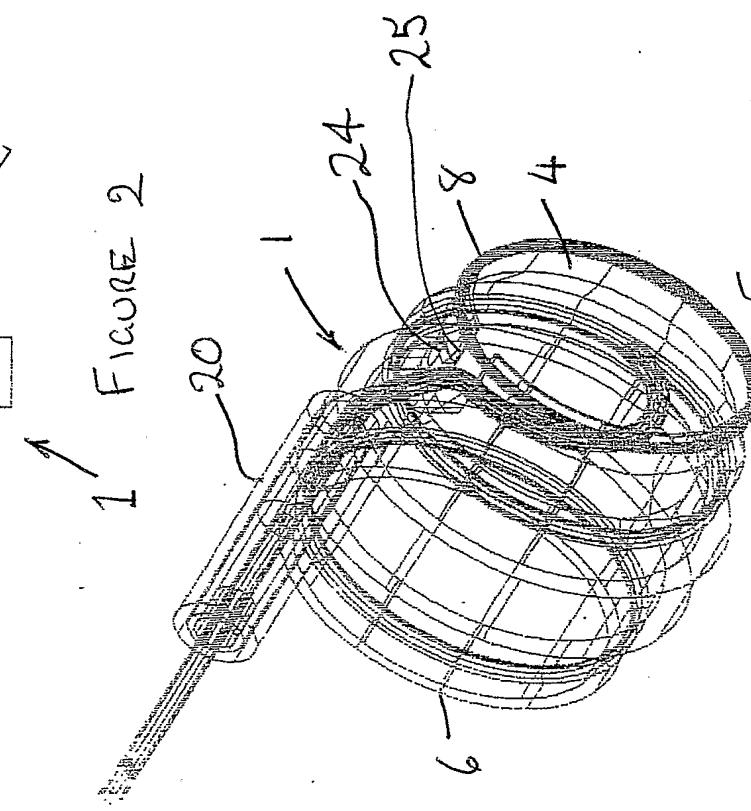


Figure 4

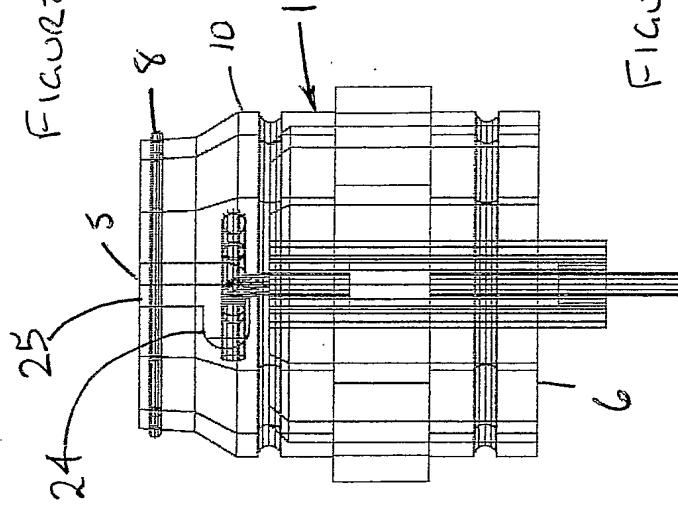


FIGURE 3

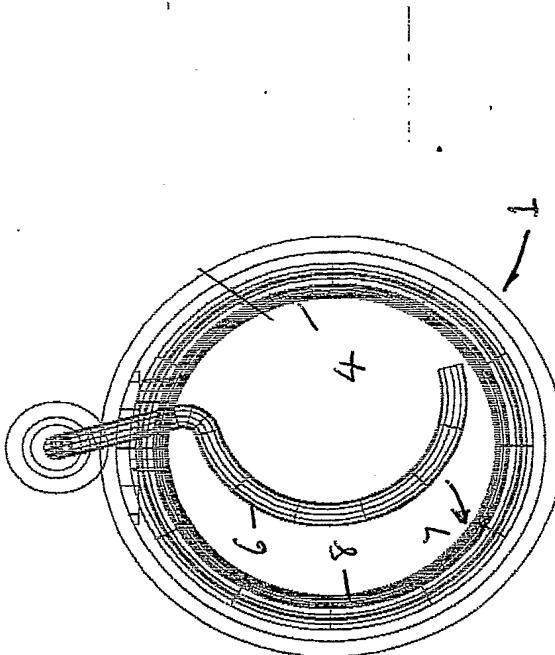


FIGURE 5

Item/Name	Quantity	Manufacturer/Designator	Material/Description	Article Identification
DESIGNED BY	CHECKED BY	Approved - Date	Patent	Scale
JOHN NEUSTROSKI			14	14
VOLUNTARY EXTERMINATOR				
JOHN NEUSTROSKI.	ONE	ONE	ONE	ONE

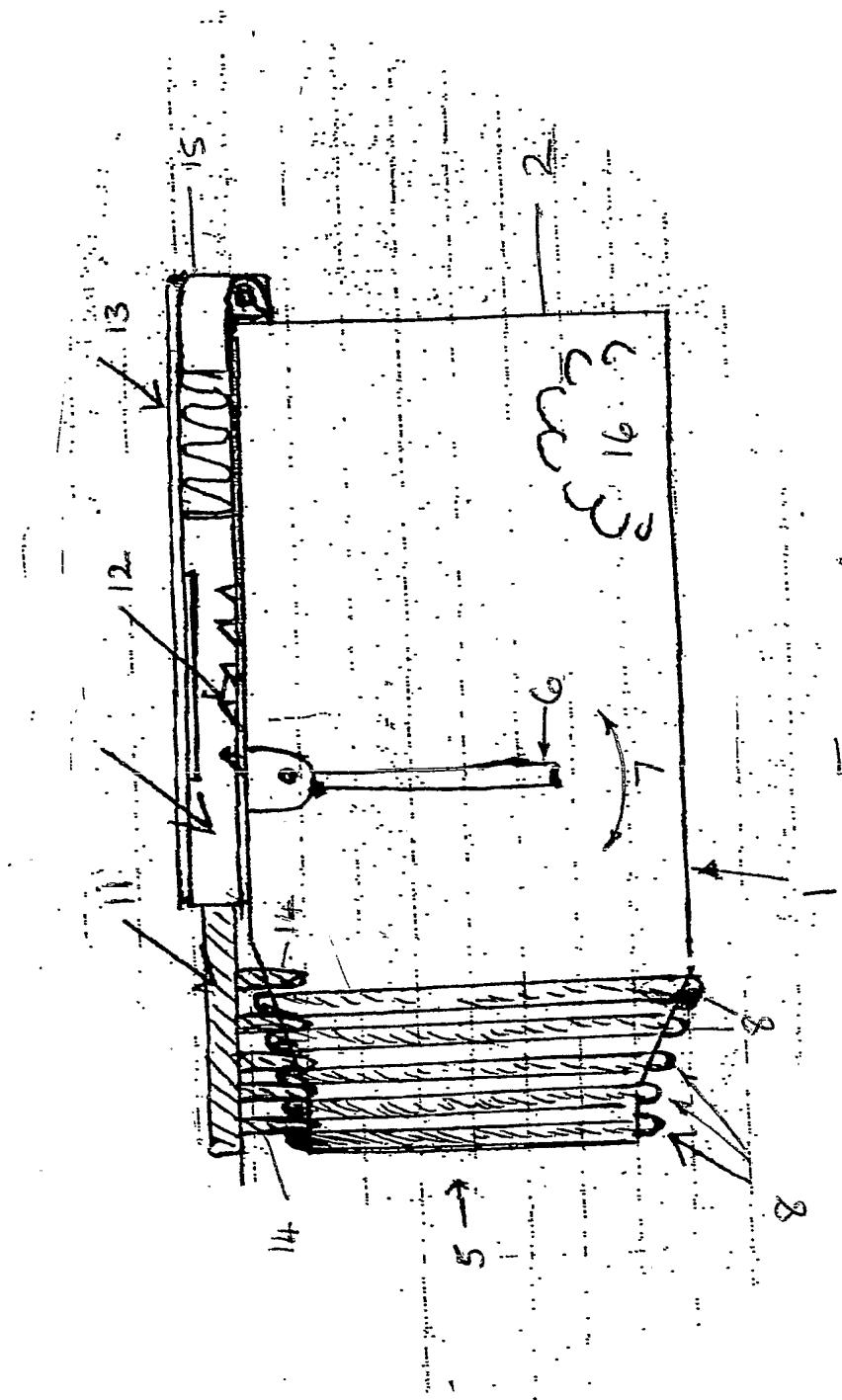
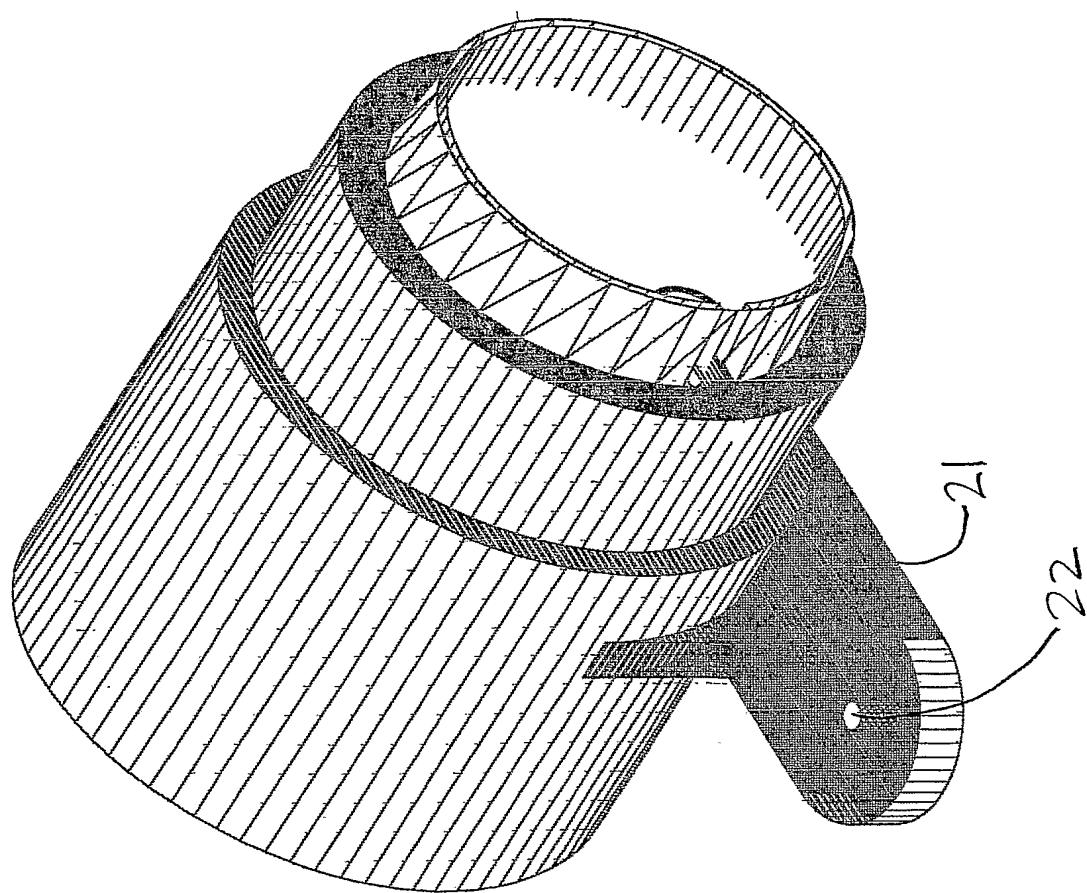


Figure 6

Figure 7



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Figure 8

